



User Manual



Each Energy Technology (Suzhou) Co., Ltd.

www.eachenergy.com

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Notice:

The information in this document is subject to change without notice. Please adhere to the actual products in case of any discrepancy. Any statements, description, and recommendations in this manual do not constitute a guarantee or warranty of any kind, explicitly or implicitly.

Warranty:

Warranty terms and conditions can be downloaded from the Internet at www.eachenergy.com.

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1. About the Manual

The manual describes product information, mounting, installation, operation, maintenance, troubleshooting and specification of Each Energy batteries.

Validity

The document is valid for the following battery models: L28.

Target Group

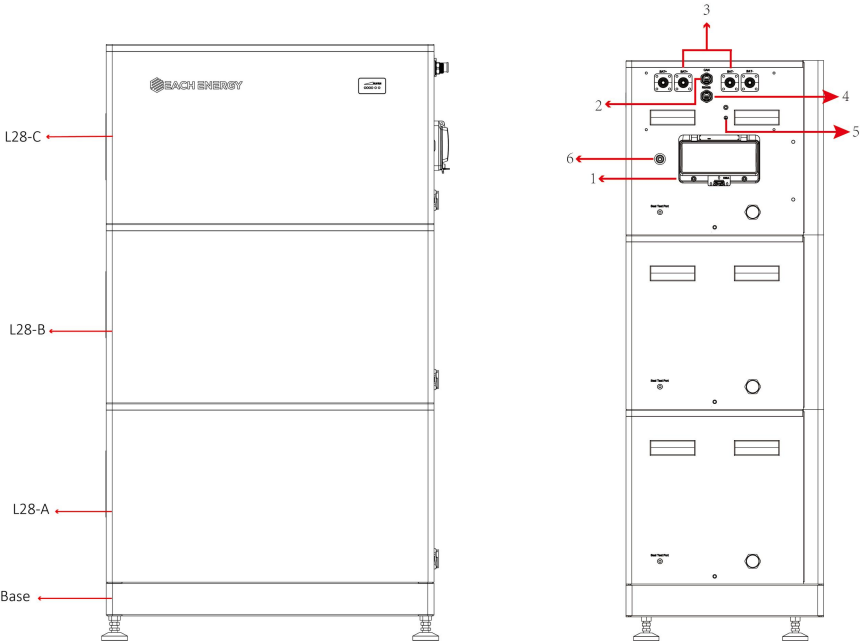
The target group of this manual are end users and qualified persons who have knowledge of batteries or skills of battery installation, maintenance, etc. Only qualified persons are allowed to perform the installation and activities marked in this document under the guidance of safety instructions. Please read this manual carefully before conducting any kind of work on the batteries.

Valid Region

This manual applies to the operation of Each Energy batteries in Australia, New Zealand, the UK, EU, South America, North America, and Southeast Asia.

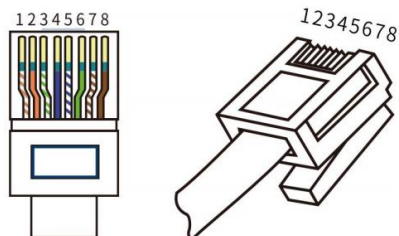
2. Product Overview

2.1 Product Appearance



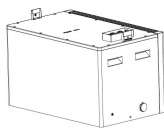
No.	1	2	3	4	5	6
Name	Breaker	Communication Port	Battery input port	Communication Port	Grounding Port	Button

2.2 Communication Port Definition

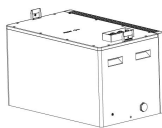


Name	PIN	Definition
CAN	1	AUADDR
	2	2A
	3	2B
	4	CANH
	5	CANL
	6	GND
	7	1A
	8	1B
RS485	1	AUADRT
	2	2A
	3	2B
	4	/
	5	/
	6	GND
	7	1A
	8	1B

2.3 Scope of Delivery



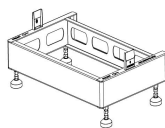
L28-A * 1



L28-B * 1



L28-C * 1



Base * 1



Mounting plate * 4



Battery cable * 2



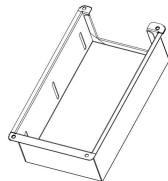
Communication cable* 1



Scerw Package * 1



Documents * 1



Junction Box Cover * 1



NOTE:

L28-A: No quick-connect port at the bottom.

L28-B: There is a quick-connect port at the bottom.

3. Safety

3.1 Safety Symbols

Symbol	Explanation
 DANGER	Indicates a high level of risk which, if not avoid, may result in death or serious injury
 WARNING	Indicates a medium level of risk which, if not avoid, may result in death or serious injury
 CAUTION	Indicates a low level of risk which, if not avoid, may result in minor or moderate injury
 NOTE	Indicates a situation which, if not avoided, may result in device damage or property damage
 ELECTRIC SHOCK	Indicates a danger of electric shock or high voltage
 HOT SURFACE	Indicates hot surface, do not touch
 WAIT	Notice of waiting at least 5 minutes before operation

3.2 Safety Instructions and Notice for Use

The batteries involved in this manual comply with applicable safety and technical regulations in design and test. To avoid personal injury and property damage and to ensure longer service life of the machines, please read this manual carefully and observe all safety information during operation.

Improper operation may result in risk of person injury or damage to the machine and to other property, so please ensure that the following requirements are met before or during operation.

- Installation of batteries must be performed by qualified technicians, and be in compliance with applicable electrical standards, regulations and the requirements of local power authorities.
- Wear protective equipment for all work on the machines: helmet, insulated footwear, gloves, etc.
- Ensure that unauthorized persons and children have no access to the machines.
- Do not open the housing of the machines at any time. Unauthorized opening will void guarantee and warranty and may damage the machines.
- Do not touch non-insulated parts or cables, disconnect the machines from voltage sources and guarantee no possible re-connection before working on the machine.
- Use measuring devices with a DC input voltage range of 600V or higher only.
- High voltage is present in the live parts and cables inside the product during operation, wait at least 5 minutes after disconnecting voltage sources.

- The temperature of some parts of the battery may exceed 50 °C during operation. To avoid being burnt, do not touch the battery during operation.
- Pack batteries properly during transportation, and do not transport them together with flammable material.

4. Storage

4.1 Storage Environment

If the equipment is not to be installed or used immediately, please ensure that the storage environment meets the following requirements:

- Pack the equipment using a packing box and put some desiccant in the box before sealing.
- Put the equipment back to the packing box if it is not to be installed in 3 days after unpacking.
- Storage SOC: 25%~50%SOC. Charge and discharge the battery every 3 months.
- Recommended storage temperature: 0°C~35°C (less than one year), -20°C~0°C or 35°C~40°C (less than one month).
- Recommended storage humidity: 0%~95%RH(no condensation). Do not install the battery if any moist or condensation is found.
- Place the equipment in a cool place where away from direct sunlight.
- Keep the equipment away from inflammable, explosive, and corrosive matters.
- Keep the equipment away from the rain.

5. Mounting

5.1 Installation Environment

- Install the Battery on the ground with sufficient bearing capacity and flatness. Increase the bearing capacity and flatness of the ground by laying the foundation, adding bearing plates and so on.
- The optimal temperature for the battery is 10~35℃ .
- Avoid exposing the equipment to direct sunlight or rain.
- Install the equipment away from heat/cold source.
- Do not install the equipment in the place where the temperature changes extremely.
- Install the equipment away from strong interferences to ensure its regular work.
- Keep children away from the equipment.
- Do not install the equipment in places prone to accumulate water.
- Do not put inflammable or explosive matters near the equipment.



WARNING

Do not select locations storing flammable material which may cause fire or explosion!

5.2 Installation Location

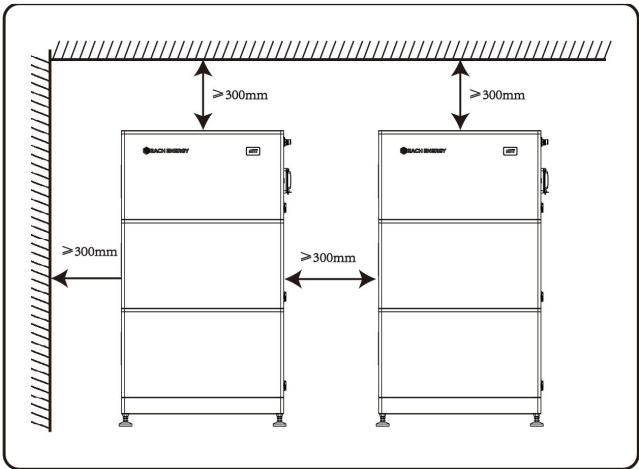
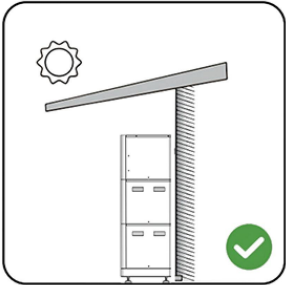
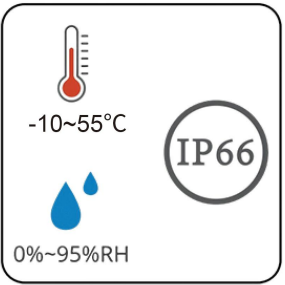
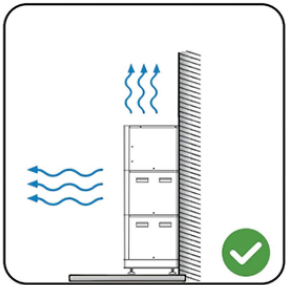
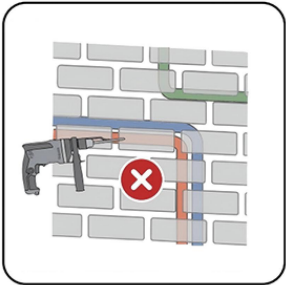
The following points should be considered when selecting an installation location.

- The location shall be convenient for electrical connection, operation and maintenance.
- The ingress protection of the battery is IP66, so it can be installed both indoors and outdoors.
- The location must be well ventilated and sheltered from direct sunlight, rain or snow.
- Install batteries vertically.
- The battery is to be installed in a high traffic area where the fault is likely to be seen.

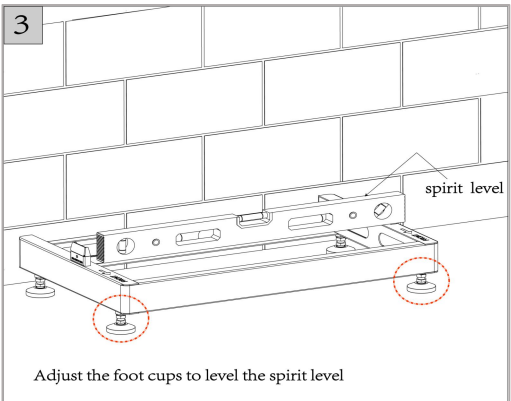
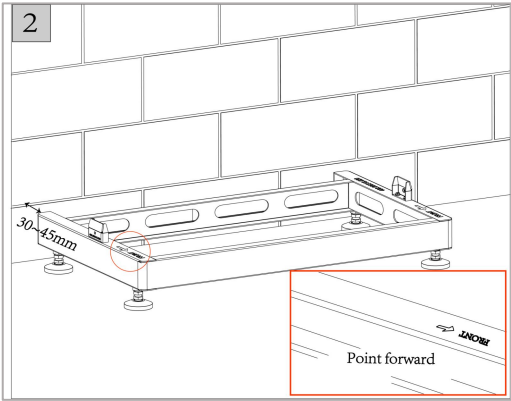
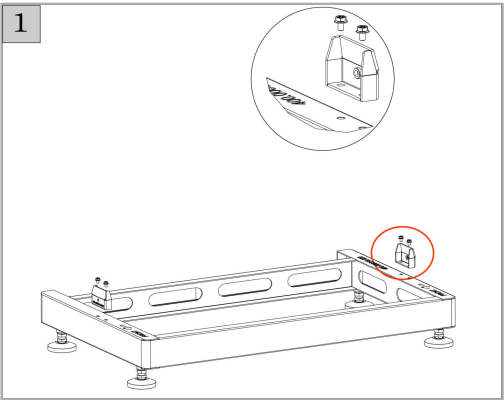
5.3 Installation Requirements

- The equipment must not be installed in flammable, explosive or corrosive environment.
- The installation location should be out of reach of children and avoid being installed in a place that is easily accessible. There may be high temperatures on the surface when the device is in operation to prevent scalding.
- Install away from pipes, cables. within walls to avoid DANGER when drilling holes.
- The protection level of the equipment should be suitable for both indoor and outdoor installation, and the temperature and humidity of the installation environment should be within the appropriate range.
- If more than one battery are installed in one location, a minimum 300 mm clearance should be kept between two batteries.

- The battery system must be kept at least 2 meters away from heat sources.
- The safety clearance for equipment installation must comply with local regulations.



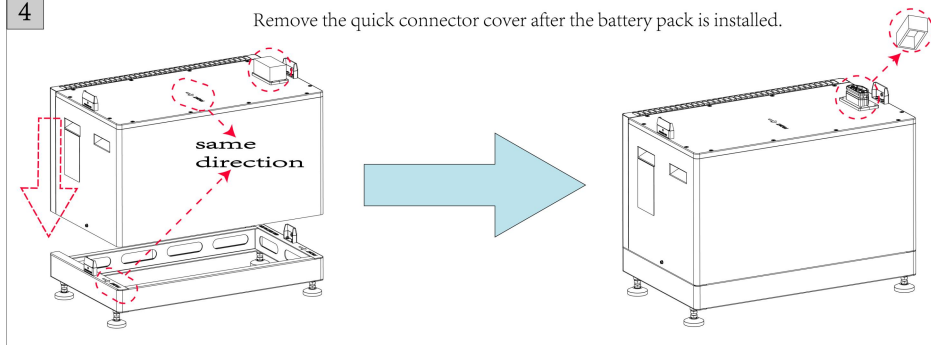
5.4 Installation



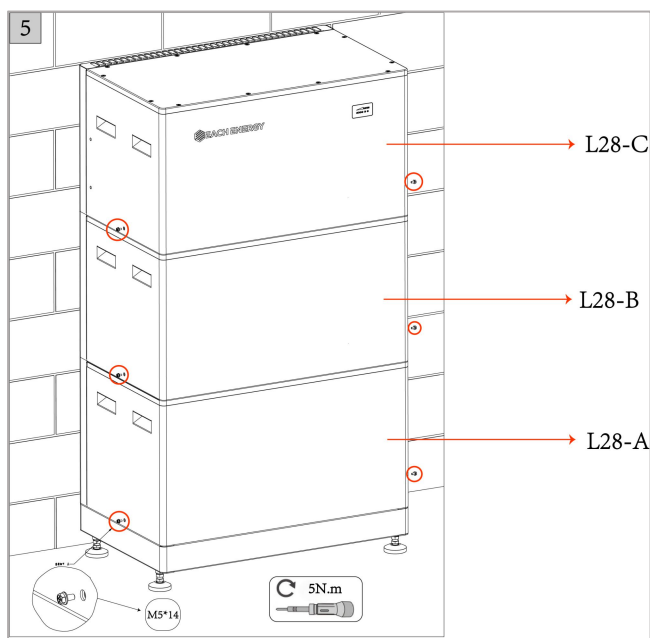
Step1: Fix the base on the wall with mounting brackets using suitable tools.

4

Remove the quick connector cover after the battery pack is installed.



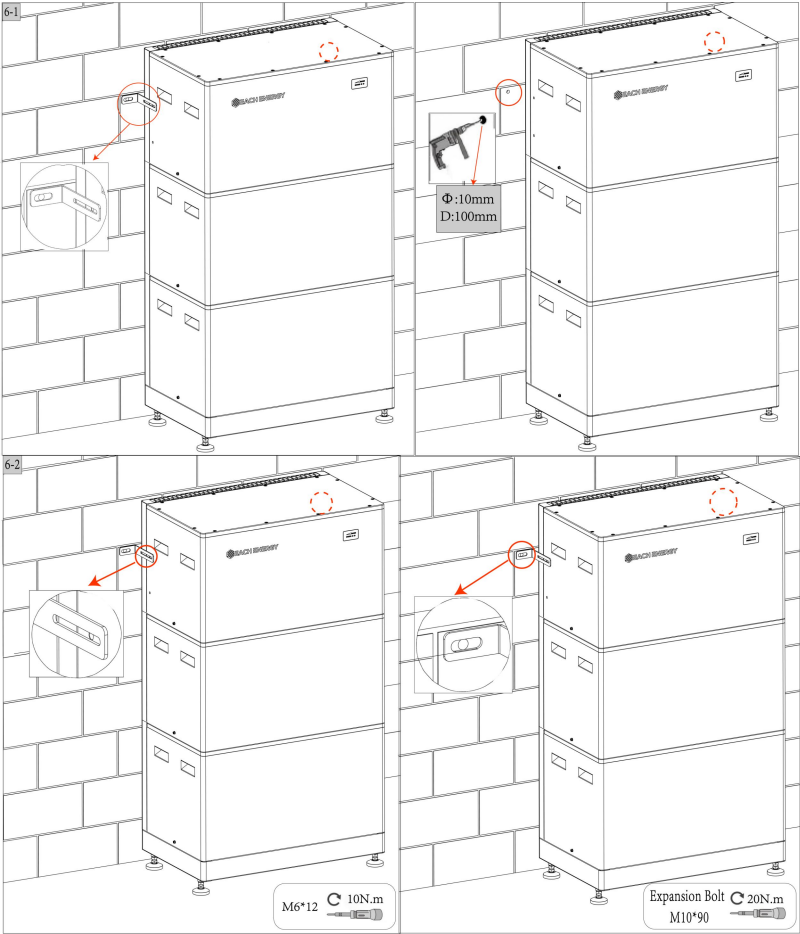
Step2: Align the battery pack L28-A with the positioning column of the base, place it and secure the side fixing screws. Remove the quick connector cover after the battery pack is installed.



Step3: Align the positioning pins of battery pack L28-B with those of battery pack L28-A, then place and secure the side fixing screws.

Step4: Align the positioning pins of battery pack L28-C with those of battery

pack L28-B, then place and secure the side fixing screws.
Last step: Mount the bracket and fix the wiring protection cover with screws.



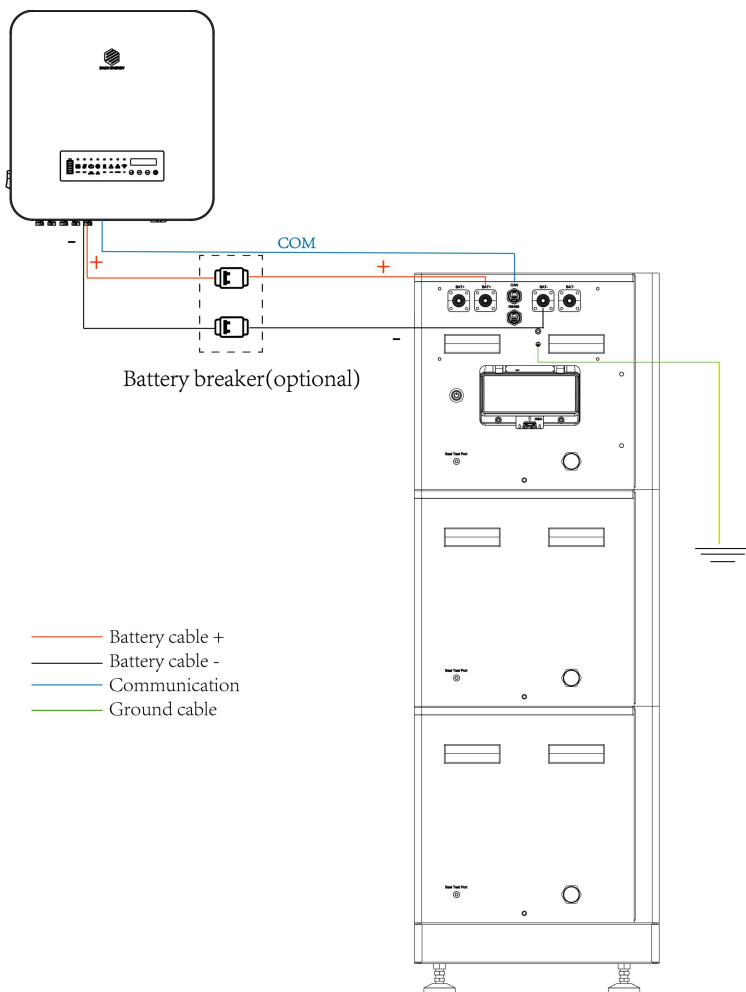
6. Electrical Connection

6.1 Cable Connection

Follow the steps below to connect the battery wiring harness:

1. Turn the Grid Supply Main switch OFF.
2. Turn the DC switch OFF, and for battery, turn the battery switch off.
3. Prepare the battery cables, including a red positive cable, a black negative cable and a network cable.
4. Plug the power connector of red cable in the battery port + on both inverter and battery.
5. Plug the power connector of black cable in the battery port — on both inverter and battery.
6. Connect the network cable to the communication interface of the inverter and the battery.

Overview of the cable connection

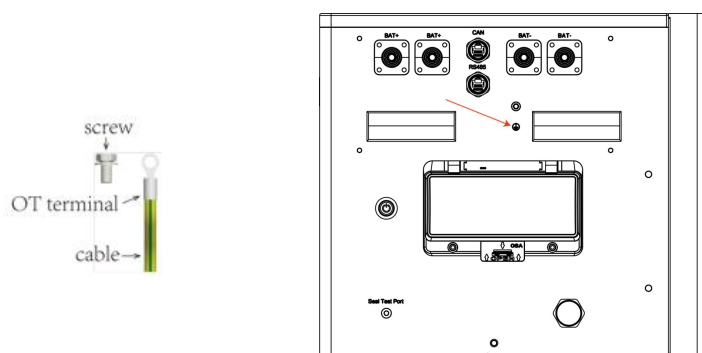


6.2 Ground Cable Connection

The external grounding port is located beside the battery port.

Procedures:

Prepare an OT terminal M4, crimp a grounding cable to the terminal, insert a fastening screw into the OT terminal, insert them to the grounding port on the battery, and screw them tightly (the torque is 1N.m.).



NOTE: Connect the PE cable first before installing the equipment.

Disconnect the PE cable before dismantling the equipment.

- The drawing force of the cables after crimping is at least 400N.
- Connect any one of the two ground cables to the ground. Reserve the other ground cable.

6.3 Battery Information

Detailed battery data available on the inverter platform.

7.Operation

7.1 Check Before Power On

Check the following items before power on. Otherwise, the Battery System may be damaged.

No.	Items
1	The equipment is installed firmly in a place where is convenient for operation and maintenance. The installation place is clean and well ventilated.
2	The ground cable, power cable, communication cable and terminal resistance are connected correctly and securely.
3	The cable ties meet the cabling requirements and are reasonably distributed. No cables or ties are broken.
4	Unused ports are sealed.

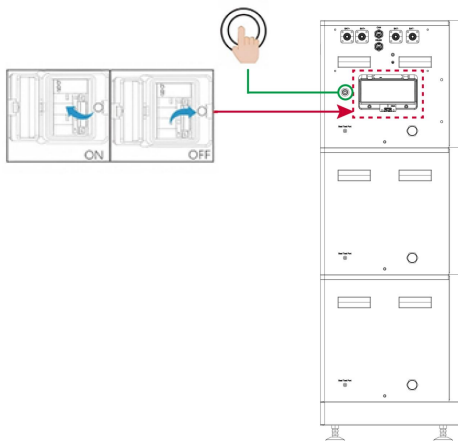
7.2 Power On the Batter System

After completing all inspections in accordance with the pre-start inspection procedure, turn on the circuit switch first, then press the start button.

7.3 Power OFF the Batter System

Step1:Turn off the inverter in the system following the instructions in the user manual of the Inverter.

Step2:Turn off the switch for the top battery module.



NOTE: Install the circuit breaker between the inverter and the battery with local laws and regulations.(Optional)

To ensure effective protection, the cover of the battery system circuit breaker must remain closed.



DANGER ELECTRIC SHOCK

High voltage may present, please beware of the risk of electric shock and take protection precautions!

8. Maintenance

8.1 General Maintenance

The batteries do not need regular maintenance and just ensure that they are free of dust, foliage and other dirt.



NOTE: The use of cleaning agents may damage the machine and its components. Only use a cloth moistened with clear water to clean the machine.

8.2 Disposing of batteries

If the batteries need to be disposed of, please do that according to the local regulations for electrical equipment waste, and choose the right site for the disposing specified for electrical equipment waste according to local regulations.

8.3 Maintenance Period

Item	Period
Fully charge the battery and discharge it to 25~50% if the battery is not in use.	Once Every 3 months
Check the wall mounting plate, fix it if it is not secured.	Once Every 6 months
Check whether the outer shell is broken. Repair the painting or contact after-sales service if there is any broken.	Once Every 6 months
Check whether there is an exposed cable. Replace the exposed cable or contact after-sales service for help.	Once Every 6 months
Check whether there is debris accumulation around the battery to avoid affecting heat dissipation.	Once Every 6 months
Check for water and pest to avoid prolonged intrusion.	Once Every 6 months

9. Specification



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LV Battery (LFP)	
Name	L28
Nominal voltage [V]	48
Rated capacity [Ah]	587
Rated Energy [kWh]	28.18
Usable Energy [kWh]	27.89
Dimensions (W*H*D)(mm)	630*1100*390
Weight (Kg)	230
DOD	99%
Rated charge and discharge current [A]	200
Rated DC Power [kW]	10
Max. charge and discharge current [A]	200
Battery Max Charge/Discharge Power	10.5kW@10S
Operating voltage range [V]	42~54V
Charging / Discharging temperature [C]	0~55/-10~55 C
Cycle life (times)	12000
Ingress protection	IP66
Protective Class	I
Country of Manufacture	China
Module	
Nominal voltage [V]	16
Operating voltage range [V]	14~18
Max operation altitude (m)	≤3000
Rated capacity [Ah]	587
Rated Energy [kWh]	9.39
Weight (Kg)	76

NOTE:
1.Test conditions: 25°C, 95%(DOD),0.2C charge & discharge, 70% SOH
2.Comment: Optimal operating temperature range: 10-35°C

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